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MEETING ABSTRACT Open Access

Structural brain changes in patients with Huntington's disease participating in a randomized, double-blind, placebo-controlled trial of ethyl-eicosapentaenoic acid

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Background

Ultra-pure ethyl-eicosapentaenoic acid (ethyl-EPA) is a semi-synthetic, ethyl ester of the long-chain fatty acid eicosapentaenoic acid which has been shown to be associated with clinical improvement in motor functioning in Huntington's disease. The aim was to determine the extent to which it might reduce the rate of progress of cerebral atrophy.

Materials and methods

High-resolution MRI cerebral scanning was carried out at baseline, six months and one year in 30 patients with stage I or II Huntington's disease who took part in a randomized, double-blind, placebo-controlled trial of 2 g daily ethyl-EPA or liquid paraffin, using a 1.0 T Picker HPQ scanner. For each subject and each pair of T1 images, the two-timepoint percentage brain volume change was estimated in a double-blind fashion using SIENA (Structural Image Evaluation, using Normalisation, of Atrophy), Version 2.5, part of the FSL (version 4.0) comprehensive library of analysis tools.

Results

Overall, patients treated with ethyl-EPA had a reduced mean rate of atrophy in all comparisons compared with the placebo group. There was no significant effect of age at the time of scanning on these results. Areas of significant group-level reduction in brain atrophy between patients receiving ethyl-EPA and those receiving placebo were found. Significant changes were observed at the head of the caudate nucleus and the posterior thalamus.

Conclusions

Treatment with ethyl-EPA is associated with significant reduction in brain atrophy in Huntington's disease, particularly in the head of the caudate and the posterior thalamus. No other drug tested in HD has shown this effect.

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